

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 6, 7, 15 and 16 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Kodas et al. (US 2006/0001726).

Regarding claim 6, Kodas et al. teach “a method for producing a printed circuit board (paragraph 234) comprising the steps of drawing a conductive pattern on a substrate (paragraph 16) by an ink comprising a dispersion of fine particles of a metal oxide or hydroxide (paragraphs 30 and 35); and reducing at least part of said fine particles of a metal oxide or hydroxide to a metal to form a conductive pattern (paragraphs 23 and 35).”

Regarding claim 7 Kodas et al. teach “wherein said pattern is drawn by said ink according to a pattern information stored in a computer (paragraph 234).”

Regarding claim 15, Kodas et al. teach “a method for producing a printed circuit board (paragraph 234) comprising the steps of drawing a pattern on a substrate (paragraph 16) by an ink having at least two liquid parts (paragraph 30) comprising a dispersion of fine particles of a metal oxide or hydroxide (paragraphs 30 and 35), and a

reducing agent having a reducing activity to said fine particles of a metal oxide or hydroxide or its solution (paragraphs 30, 35 and 89); and

reducing at least part of said fine particles of a metal oxide or hydroxide to a metal to form a conductive pattern (paragraphs 23 and 35)."

Regarding claim 16, Kudas et al. teach all that is claimed, but fails to specifically teach "wherein said pattern is drawn by said ink according to a pattern information stored in a computer (paragraph 234)."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 8, 9, 17, 18, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kudas et al. (US 2006/0001726).

Regarding claims 8 and 17, Kudas et al. teach all that is claimed, as in claims 6 and 15 above, including the application of heat in order to reduce the metal precursors (paragraph 183). Kudas et al. fail to specifically teach how the heat is applied.

However, Examiner takes official notice that it was known at the time of the invention to use energy irradiation to cause heating. Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to conduct energy irradiation "in

the process of forming said conductive pattern” in the method of Kudas et al. in order to apply heat.

Regarding claims 9, 18, 20 and 21, Kudas et al. teach all that is claimed, as in claims 6 and 15 above, but fail to specifically mention the type of atmosphere used during the reduction process. However, Examiner takes Official Notice that, at the time of the invention, it was known to use non-reactive gases (such as nitrogen, helium, neon or argon) as the atmosphere for conducting reduction reactions in order to prevent oxidation of material being reduced. Therefore, at the time of the invention, it would have been obvious to one having ordinary skill in the art to modify the method of Kudas et al. such that “the formation of said conductive pattern is conducted in an inert gas” which is “selected from the group consisting of nitrogen, helium, neon and argon” in order to achieve the expected result of preventing unwanted oxidation in the reduction process.

Response to Arguments

3. Applicant's arguments with respect to all the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA D. ZIMMERMAN whose telephone number is (571)272-2749. The examiner can normally be reached on M-R 8:30A - 6:00P, Alternate Fridays 8:30A-5:00P.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Judy Nguyen/
Supervisory Patent Examiner, Art Unit 2854

Joshua D Zimmerman
Examiner
Art Unit 2854

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